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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1-28 and 30*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28 and 30* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claim 29 has been cancelled. Claims 1, 9, 16, and 19 have been amended. Claims 1-28

and 30 are pending in this office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-2, 9, 13, 16, 19, 23, 25-26, and 30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over the Non-Patent Literature "Building XML Web Services for the

Microsoft®.NET Platform" published by Microsoft Press and written by Scott Short (hereinafter

"Short") in further view of Non-Patent Literature titled "Extending a Class to a Web Service

published by Yehuda Shiran (hereinafter "Shiran"). ·

Claim 1:

Short discloses a computer-readable medium having computer-executable instructions for

a client on computer network to use a Web service to performing steps for accessing, via a

server, a database directory for discovering other Web services accessible on the network *(Short:*

Chapter 9 – "Discovery Mechanisms for Web Services", page 1, lines 1-23 and table 9-1 "UDDI API Inquiry

Methods " and Table 9-4 "UDDI Type Taxonomy Values", 'wsdlSpec' and page 24, lines 13-32), the computer

readable medium comprising computer-executable instructions for:

receiving a description document from the server for describing a Web service *(Short:*

Chapter 1 – "Why Web Services?", Section 2: "Web Services Design Decisions", Subsection: "Choosing

Description Mechanisms, particularly lines 1-3 and 13-14 of this subsection; This reference describes a WSDL

document (description document) which is transferred between client, Web Server, and server in order to facilitate

communication between the three components. Note that the WSDL document describes a Web Service. Also note

Chapter 1 – "Why Web Services?", Section 1: "Web Services Building Blocks".) which interacts with the

server to discover other Web services listed in a database directory of Web services *(Short: Chapter*

9 – "Discovery Mechanisms for Web Services", page 1, lines 1-23 and table 9-1 "UDDI API Inquiry Methods "

and Table 9-4 "UDDI Type Taxonomy Values", 'wsdlSpec' and page 24, lines 13-32), the description

document having:

        class definitions for generic object class *(Short: Chapter 7 – "XML Serialization", Section*

4: "Creating Derived Datatypes", lines 1-5 and 6-25);

        a plurality of object type classes derived from the generic object class, wherein

each of the plurality of object type classes corresponds to a type of object in the database

directory of Web services *(Short: Chapter 7 – "XML Serialization", Section 4: "Creating Derived*

Datatypes", lines 1-5 and 6-25; Note that the program code listed from lines 6-25 are identical to the

program code listed under paragraph [0026] of the applicant's specification. The generic class of the

reference is Tire and the object type classes derived from the generic class are AutoTire and

MountainBikeTire. Each object type class (AutoTire and MountainBikeTire) corresponds to the type Tire,

whose definition is stored in some form of database.); and

        wherein each of the plurality of database operation methods is defined for the

generic object class *(Short: Chapter 7 – "XML Serialization", Section 6: "Defining the AcceptPO Web*

Method", lines 1-16 and Short: Chapter 7 – "XML Serialization", Section 4: "Creating Derived

Datatypes", lines 1-5 and 6-25 and Chapter 1; The first reference listed here discloses the process of adding

a method to a generic type. It should be noted that adding a method (or member function) to an object (or

class) is very well known in the art. The second reference listed here clearly shows the process of deriving a

second object from a first object.);

at least one flag statement identifying an object type *(Short: Chapter 7 – "XML*

Serialization", Section 4: "Creating Derived Datatypes", lines 6-7 and lines 26-28; The flag statement is

the XmlInclude statement on lines 6-7. Each include statement distinguishes an object type class

corresponding to a type of object in the database. In this case the object type is a particular type of Tire.);

and

generating a database access request message for performing a database operation on a

selected object type in the directory of Web services *(Short: Chapter 1 – "Why Web Services?", lines 67-*

68; The code presented in Chapter 7, WSDL documents, and Web Services are used for the purpose of generating

database access requests in order to perform remote database operations.), including:

determining whether the selected object type is the object type identified by the

flag statement *(Short: Chapter 7 – "XML Serialization", Section 4: "Creating Derived Datatypes", lines*

6-25 and 26-28; This reference and the explanation of this reference below clearly show how an object type

is identified by the 'xmlinclude' flag.);

if the selected object type is the object type identified by the flag statement,

creating an object of the selected object type using the class definition for the selected

object type in the received description document and generating a database operation

method for the selected object type, the database operation method for the selected object

type being based on one of the database operation methods defined for the generic object

class *(Short: Chapter 7 – "XML Serialization", Section 4: "Creating Derived Datatypes", lines 6-25 and*

26-28; The program code in the Short reference is the is the exact program code presented in the applicant's

specification. Note specifically the references cited here and the group of code listed under paragraph

[0026] of the Applicant's Specification. The two examples of program code must perform the same

functions since they are the same. Both sets of program code use the XmlIncludes flag statement to identify

an object type. Then the program 'generates' operation methods based on that determination.);

serializing the created object of the selected object type and including the

serialized object in the request message *(Short: Chapter 7 – "XML Serialization", Section 4:*

"Creating Derived Datatypes", lines 5; Also see Chapter 1 – "Why Web Services?", Section 2: "Web

Services Design Decisions", Subsection: "Choosing Description Mechanisms, particularly lines 1-3 and

13-14.).

After further review, the Examiner is convinced that the Short reference, at the very least,

implicitly discloses all the elements of the Applicant's claimed invention. Furthermore, the

Short reference is a teaching reference that actually explains how to construct the Applicant's

claimed invention. The Examiner notes that in numerous examples the Short reference teaches

the use of the system.Web.Service class *(Short: At least Chapter 6 –"ASP.NET", Section 1: "Creating an*

ASP.NET Web Service"). The Examiner believes, based on the prior art, that all Web Services

implement a Web service class that is derived from a parent class. But, the Examiner points out

that the Short reference does not <u>explicitly</u> disclose a Web service class that includes a plurality

of database operation methods defined within the Web service class, the plurality of database

operation methods being defined for operating on instances of database objects within the

database directory of Web services, and wherein the Web service class is derived from a parent

class.

However, Shiran explicitly discloses a Web service class that includes a plurality of database operation methods defined within the Web service class, the plurality of database operation methods being defined for operating on instances of database objects within the database directory of Web Services *(Shiran: page 1, lines 9-11)*, and wherein the Web service class is derived from a parent class *(Shiran: page 1, line 4 and page 1, line 9; Note specifically that the Shiran reference in lines 1-11 discloses the __exact__ concept behind paragraph [0027], lines 8-13 of the Applicant's PGPub Specification. That portion of the specification is the portion that supports this claim amendment. Therefore, the Examiner is confident that the reference discloses not only the Applicant's claimed invention, but also the Applicant's claim as a whole.).*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Short with the teachings of Shiran noted above for the purpose of creating a Web service class that is derived from a parent class *(Shiran: page 1, line 4 and page 1, line 9).* The skilled artisan would have been motivated to improve the teachings of Short with the teachings of Shiran noted above such that the derived class would have free access to the plurality of methods provided by the parent WebService class *(Shiran: page 1, lines 9-11).*

Claim 2:

The combination of Short and Shiran discloses all the elements of claim 1, as noted above, and Short further discloses wherein the description document is in the Web Services Description Language *(Short: Chapter 1 – "Why Web Services?", Section 2: "Web Services Design Decisions", Subsection: "Choosing Description Mechanisms, particularly lines 1-3 and 13-14 of this subsection; This reference describes a WSDL document (description document) which is transferred between client, Web Server,*

and server in order to facilitate communication between the three components. Also note Chapter 1 – "Why Web

Services?", Section 1: "Web Services Building Blocks".).

Claim 9:

Short discloses a computer-readable medium having computer-executable instructions for

a server of a runtime environment platform to provide a Web service of discovering other web

services by accessing a database directory of Web Services *(Short: Chapter 9 – "Discovery Mechanisms*

for Web Services", page 1, lines 1-23 and table 9-1 "UDDI API Inquiry Methods " and Table 9-4 "UDDI Type

Taxonomy Values", 'wsdlSpec' and page 24, lines 13-32), comprising computer-executable instructions

for:

sending, in response to a query from a client, a description document to the client *(Short:*

Chapter 1 – "Why Web Services?", Section 2: "Web Services Design Decisions", Subsection: "Choosing

Description Mechanisms, particularly lines 1-3 and 13-14 of this subsection; This reference describes a WSDL

document (description document) which is transferred between client, Web Server, and server in order to facilitate

communication between the three components. Also note Chapter 1 – "Why Web Services?", Section 1: "Web

Services Building Blocks".), the description document describing a Web Service which interacts with

the server to discover other Web services listed in a database directory of Web services *(Short:*

Chapter 9 – "Discovery Mechanisms for Web Services", page 1, lines 1-23 and table 9-1 "UDDI API Inquiry

Methods " and Table 9-4 "UDDI Type Taxonomy Values", 'wsdlSpec' and page 24, lines 13-32), the description

document containing:

class definitions for a generic object class *(Short: Chapter 7 – "XML Serialization",*

Section 4: "Creating Derived Datatypes", lines 1-5 and 6-25);

a plurality of object type classes derived from the generic object class, wherein

each of the plurality of object type classes corresponds to a type of object in the database

directory of Web services *(Short: Chapter 7 – "XML Serialization", Section 4: "Creating Derived*

Datatypes", lines 1-5 and 6-25; Note that the program code listed from lines 6-25 are identical to the

program code listed under paragraph [0026] of the applicant's specification. The generic class of the

reference is Tire and the object type classes derived from the generic class are AutoTire and

MountainBikeTire. Each object type class (AutoTire and MountainBikeTire) corresponds to the type Tire,

whose definition is stored in some form of database.);

wherein each of the plurality of database operation methods is defined for the

generic object class *(Short: Chapter 7 – "XML Serialization", Section 6: "Defining the AcceptPO Web*

Method", lines 1-16 and Short: Chapter 7 – "XML Serialization", Section 4: "Creating Derived

Datatypes", lines 1-5 and 6-25 and Chapter 1; The first reference listed here discloses the process of adding

a method to a generic type. It should be noted that adding a method (or member function) to an object (or

class) is very well known in the art. The second reference listed here clearly shows the process of deriving a

second object from a first object.);

receiving a request message from the client for performing a requested database operation

method, the request message including a serialized object for the requested database operation

method *(Short Chapter 7 – "XML Serialization", Section 6: "Defining the AcceptPO Web Method", lines 19-21;*

Also note that the purpose of the Web Service is to allow the client to request database operations. Web Services

accept request from clients in a certain format and then translate that format into the format needed to access a

server (database). Web Services also translate the response from the server into a form suitable for the client. This is

well known in the art and admitted prior art as stated in paragraph [0002] of the applicant's disclosure under

"Background of the Invention".);

deserializing the serialized object;

identifying an object type and parameters of the deserialized object; and

accessing the database directory of web services *(Short: Chapter 9 – "Discovery Mechanisms for Web Services", page 1, lines 1-23 and table 9-1 "UDDI API Inquiry Methods " and Table 9-4 "UDDI Type Taxonomy Values", 'wsdlSpec' and page 24, lines 13-32)* to carry out the requested database operation method based on the object type and parameters of the deserialized object *(Short: Chapter 7 – "XML Serialization", lines 1-4 and Chapter 7 – "XML Serialization", section 4: "Creating Derived Datatypes", lines 6-7 and Short: Chapter 1 – "Why Web Services?", lines 67-68; The first reference cited here shows that the process of XML Serialization handles both serialization and deserialization of objects. The second reference shows the XmlInclude command, which is used to identify object types. And the third reference shows that Web Services are used to carry out activities at the request of a client.).*

After further review, the Examiner is convinced that the Short reference, at the very least, implicitly discloses all the elements of the Applicant's claimed invention. Furthermore, the Short reference is a teaching reference that actually explains how to construct the Applicant's claimed invention. The Examiner notes that in numerous examples the Short reference teaches the use of the system.Web.Service class *(Short: At least Chapter 6 –"ASP.NET", Section 1: "Creating an ASP.NET Web Service")*. The Examiner believes, based on the prior art, that all Web Services implement a Web service class that is derived from a parent class. But, the Examiner points out that the Short reference does not explicitly disclose a Web service class that includes a plurality of database operation methods defined within the Web service class, the plurality of database operation methods being defined for operating on instances of database objects within the

database directory of Web Services, and wherein the Web service class is derived from a parent

class.

However, Shiran explicitly discloses a Web service class that includes a plurality of

database operation methods defined within the Web service class, the plurality of database

operation methods being defined for operating on instances of database objects within the

database directory of Web services *(Shiran: page 1, lines 9-11)*, and wherein the Web service class is

derived from a parent class *(Shiran: page 1, line 4 and page 1, line 9; Note specifically that the Shiran reference*

in lines 1-11 discloses the exact concept behind paragraph [0027], lines 8-13 of the Applicant's PGPub

Specification. That portion of the specification is the portion that supports this claim amendment. Therefore, the

Examiner is confident that the reference discloses not only the Applicant's claimed invention, but also the

Applicant's claim as a whole.).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the teachings of Short with the teachings of Shiran noted above for the

purpose of creating a Web service class that is derived from a parent class *(Shiran: page 1, line 4 and*

page 1, line 9). The skilled artisan would have been motivated to improve the teachings of Short

with the teachings of Shiran noted above such that the derived class would have free access to

the plurality of methods provided by the parent WebService class *(Shiran: page 1, lines 9-11).*

Claim 13:

The combination of Short and Shiran discloses all the elements of claim 9, as noted

above, and Short further discloses wherein the description document is in the Web Services

Description Language (WSDL) *(Short: Chapter 1 – "Why Web Services?", Section 2: "Web Services Design*

Decisions", Subsection: "Choosing Description Mechanisms, particularly lines 1-3 and 13-14 of this subsection;

This reference describes a WSDL document (description document) which is transferred between client, Web Server, and server in order to facilitate communication between the three components. Also note Chapter 1 – "Why Web Services?", Section 1: "Web Services Building Blocks".).

Claim 16:

The combination of Short and Shiran discloses all the elements of claim 9, as noted above, and Short further discloses wherein the step of accessing the database to carry out the requested database operation method includes communicating with a database server for the database directory of Web services *(Short: Chapter 1 – "Why Web Services?", Section 1: "Web Services Building Blocks", lines 25-28 and Chapter 9 – "Discovery Mechanisms for Web Services", page 1, lines 1-23 and table 9-1 "UDDI API Inquiry Methods " and Table 9-4 "UDDI Type Taxonomy Values", 'wsdlSpec' and page 24, lines 13-32); Note especially "message must be transferred between the client and the server". This requires communication between the client and the database server.).*

Claim 19:

Short discloses a Web service for discovering other Web services by accessing a database directory of Web services *(Short: Chapter 9 – "Discovery Mechanisms for Web Services", page 1, lines 1-23 and table 9-1 "UDDI API Inquiry Methods " and Table 9-4 "UDDI Type Taxonomy Values", 'wsdlSpec' and page 24, lines 13-32),* comprising:

means for providing a description document describing a Web service which configured to discover other Web services from a database directory of Web services *(Short: Chapter 9 – "Discovery Mechanisms for Web Services", page 1, lines 1-23 and table 9-1 "UDDI API Inquiry Methods " and Table 9-4 "UDDI Type Taxonomy Values", 'wsdlSpec' and page 24, lines 13-32),* the description document containing:

class definitions for a generic object class *(Short: Chapter 7 – "XML Serialization", Section 4:*

"Creating Derived Datatypes", lines 1-5 and 6-25 and Chapter 1 – "Why Web Services?", lines 1-18; Note that the

program code listed from lines 6-25 are identical to the program code listed under paragraph [0026] of the

applicant's specification. The generic class of the reference is Tire and the object type classes derived from the

generic class are AutoTire and MountainBikeTire.);

a plurality of object type classes derived from the generic object class and wherein each

of the plurality of object type classes corresponds to a type of object in the database directory of

Web services *(Short: Chapter 7 – "XML Serialization", Section 4: "Creating Derived Datatypes", lines 1-5 and*

6-25 and Chapter 1 – "Why Web Services?", lines 1-18; Note that the program code listed from lines 6-25 are

identical to the program code listed under paragraph [0026] of the applicant's specification. The generic class of the

reference is Tire and the object type classes derived from the generic class are AutoTire and MountainBikeTire.

Each object type class (AutoTire and MountainBikeTire) corresponds to the type Tire, whose definition is stored in

some form of database. The second reference given here from Chapter 1 is an introduction to Web Services that

makes clear a computer system for carrying out the program code presented throughout the text. Specifically line 18

cites "Clients" communicating with the "server" over the "internet". "Clients" and "servers" are known in the art

to include a CPU, memory, and operating systems providing a __means for__ *carrying out the suggestions set forth in*

the text written by Short. Examiner notes that the "client", "server", and "internet" provide the __means for__ *all of*

the further cited portions in the rejection of claims 19-27.);

wherein each of the plurality of database operation methods is defined for the generic

object class *(Short: Chapter 7 – "XML Serialization", Section 6: "Defining the AcceptPO Web Method", lines 1-*

16 and Short: Chapter 7 – "XML Serialization", Section 4: "Creating Derived Datatypes", lines 1-5 and 6-25 and

Chapter 1; The first reference listed here discloses the process of adding a method to a generic type. It should be

noted that adding a method (or member function) to an object (or class) is very well known in the art. The second

reference listed here clearly shows the process of deriving a second object from a first object.);

means for sending, in response to a query from a client, the description document to the

client *(Chapter1 – "Why Web Services?", line 18; The means for sending the description document are the*

"client" (known in the art to be a computer comprising CPU, memory, operating system, etc.) and the "internet".);

means for receiving a request message from the client for performing a requested

database operation method, the request message including a serialized object for the requested

database operation method *(Short Chapter 7 – "XML Serialization", Section 6: "Defining the AcceptPO Web*

Method", lines 19-21; Also note that the purpose of the Web Service is to allow the client to request database

operations. Web Services accept request from clients in a certain format and then translate that format into the

format needed to access a server (database). Web Services also translate the response from the server into a form

suitable for the client. This is well known in the art and admitted prior art as stated in paragraph [0002] of the

applicant's disclosure under "Background of the Invention".);

means for deserializing the serialized object;

means for identifying an object type and parameters of the deserialized object; and

means for accessing the database directory of Web services to carry out the requested

database operation method based on the object-type and parameters of the deserialized object

(Short: Chapter 7 – "XML Serialization", lines 1-4 and Chapter 7 – "XML Serialization", section 4: "Creating

Derived Datatypes", lines 6-7 and Short: Chapter 1 – "Why Web Services?", lines 67-68; The first reference cited

here shows that the process of XML Serialization handles both serialization and deserialization of objects. The

second reference shows the XmlInclude command, which is used to identify object types. And the third reference

shows that Web Services are used to carry out activities at the request of a client.).

After further review, the Examiner is convinced that the Short reference, at the very least, implicitly discloses all the elements of the Applicant's claimed invention. Furthermore, the Short reference is a teaching reference that actually explains how to construct the Applicant's claimed invention. The Examiner notes that in numerous examples the Short reference teaches the use of the system.Web.Service class *(Short: At least Chapter 6 –"ASP.NET", Section 1: "Creating an ASP.NET Web Service")*. The Examiner believes, based on the prior art, that all Web Services implement a Web service class that is derived from a parent class. But, the Examiner points out that the Short reference does not <u>explicitly</u> disclose a Web service class that includes a plurality of database operation methods defined within the Web service class, the plurality of database operation methods being defined for operating on instances of database objects within the database directory of Web services, and wherein the Web service class is derived from a parent class.

However, Shiran explicitly discloses a Web service class that includes a plurality of database operation methods defined within the Web service class, the plurality of database operation methods being defined for operating on instances of database objects within the directory of Web services *(Shiran: page 1, lines 9-11)*, and wherein the Web service class is derived from a parent class *(Shiran: page 1, line 4 and page 1, line 9; Note specifically that the Shiran reference in lines 1-11 discloses the <u>exact</u> concept behind paragraph [0027], lines 8-13 of the Applicant's PGPub Specification. That portion of the specification is the portion that supports this claim amendment. Therefore, the Examiner is confident that the reference discloses not only the Applicant's claimed invention, but also the Applicant's claim as a whole.)*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Short with the teachings of Shiran noted above for the

purpose of creating a Web service class that is derived from a parent class *(Shiran: page 1, line 4 and*

page 1, line 9). The skilled artisan would have been motivated to improve the teachings of Short

with the teachings of Shiran noted above such that the derived class would have free access to

the plurality of methods provided by the parent WebService class *(Shiran: page 1, lines 9-11)*.

Claim 23:

The combination of Short and Shiran discloses all the elements of claim 19, as noted

above, and Short further discloses wherein the description document is in the Web Services

Description Language (WSDL) *(Short: Chapter 1 – "Why Web Services?", Section 2: "Web Services Design*

Decisions", Subsection: "Choosing Description Mechanisms, particularly lines 1-3 and 13-14 of this subsection;

This reference describes a WSDL document (description document) which is transferred between client, Web Server,

and server in order to facilitate communication between the three components. Also note Chapter 1 – "Why Web

Services?", Section 1: "Web Services Building Blocks".).

Claim 25:

The combination of Short and Shiran discloses all the elements of claim 19, as noted

above, and Short further discloses wherein the means for deserializing the object in the request

message is a runtime environment *(Short: Chapter 7 – "XML Serialization", Section 7: "Server-Side*

Validation", line 11).

Claim 26:

The combination of Short and Shiran discloses all the elements of claim 19, as noted

above, and Short further discloses wherein the means for accessing the database communicates

with a database server for the database to carry out the requested database operation method

(Short: Chapter 1 – "Why Web Services?", Section 1: "Web Services Building Blocks", lines 25-28; Note especially

"message must be transferred between the client and the server". This requires communication between the client and the database server.).

Claim 30:

The combination of Short and Shiran discloses all the elements of claim 1, as noted above, and Short further discloses wherein receiving a description document from the server comprises:

the client receiving a description document in an intermediate language for a runtime environment *(Short: Chapter 11 – "Debugging Web Services", Section 2: "Information the Debugger Needs", lines 16-18)*; and

a runtime environment of the client converting the description document from the intermediate language into WSDL *(See at least Short: Chapter 6 – "ASP.NET", Section 1: "Creating an ASP.NET Web Service", lines 31-33).*

3.   Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short in view Shiran and further in view of U.S. Patent Application Publication Number 2001/0034743 issued to Edwin Thomas (hereinafter "Thomas").

Claim 3:

The combination of Short and Shiran discloses all the elements of claim 2, as noted above, and Short further discloses wherein the step of receiving includes converting the description document into a compiled software format *(Short: Chapter 6 – "ASP.NET", Section 1: "Creating an ASP.NET Web Service", lines 31-33).*

The combination Short and Shiran does not explicitly disclose wherein the compiling of

software occurs at the client computer. However, Thomas discloses wherein the compiling of

software occurs at the client computer *(Thomas: paragraph [0138], lines 4-9).*

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the previously mentioned combination with the teachings of Thomas noted

above. The skilled artisan would have been motivated to improve previously mentioned

combination per the above such that the majority of the processing is accomplished away from

the server *(Thomas: paragraph [0138], lines 8-9).*

Claim 4:

The combination of Short, Shiran, and Thomas discloses all the elements of claim 3, as

noted above, and Short further discloses wherein the compiled software format is for an

intermediate language for a computer runtime environment *(Short: Chapter 11 – "Debugging Web*

Services", Section 2: "Information the Debugger Needs", lines 16-18).

4.   Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short in

view of Shiran and further in view of U.S. Patent Application Publication Number 2004/0162871

issued to Kuldipsingh A. Pabla et al. (hereinafter "Pabla").

Claim 5:

The combination of Short and Shiran discloses all the elements of claim 1, as noted

above, but does not explicitly disclose wherein the database operation methods includes a search

method. However, Pabla discloses wherein the database operation methods includes a search

method *(Pabla: see program code underneath paragraph [0105]; The code listed is program code for a class. One of*

the methods included with the class is a search method named "public int search()".).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the previously mentioned combination with the teachings of Pabla noted above for the purpose of including a search method as a database operation method. The skilled artisan would have been motivated to improve the previously mentioned combination per the above such that the search method could return any contents of the database matching an input parameter.

Claim 7:

The combination of Short and Shiran discloses all the elements of claim 1, as noted above, but does not explicitly disclose wherein the database operation methods includes at least one method with an array as an operand. However, Pabla discloses wherein the database operation methods includes at least one method with an array as an operand *(Pabla: see program code above paragraph [0104]; The code listed is program code for a class. One of the methods included with the class is a method named "Message" and it accepts an array as an operand.)*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the previously mentioned combination with the teachings of Pabla noted above. The skilled artisan would have been motivated to improve the previously mentioned combination with the teachings of Pabla noted above for the purpose of performing batch processing *(Accepting an array of elements as an operand in a method or function is very well known in the art.)*.

5.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Short in view of Shiran in view of Pabla and further in view of U.S. Patent Application Publication Number 2003/0233360 issued to Chai-Hup Tan (hereinafter "Tan").

Claim 6:

The combination of Short, Shiran, and Pabla discloses all the elements of claim 5, as noted above, but does not explicitly disclose wherein the search method returns an array as search results. However, Tan discloses wherein the search method returns an array as search results *(Tan: paragraph [0046], lines 1-8)*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the previously mentioned combination with the teachings of Tan noted above. The skilled artisan would have been motivated to improve the previously mentioned combination such that when multiple results are found for a search, all results are returned, not just the first match.

6.   Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Short in view of Shiran in view of Pabla and further in view of U.S. Patent Number 5,392,448 issued to Robert F. Frankel et al. (hereinafter "Frankel").

Claim 8:

The combination of Short, Shiran, and Pabla discloses all the elements of claim 7, as noted above, but does not explicitly disclose wherein the at least one method is a create method. However, Frankel discloses wherein the at least one method is a create method *(Frankel: column 10, lines 56-58)*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the previously mentioned combination with the teachings of Frankel noted above. The skilled artisan would have been motivated to improve the previously mentioned

combination per the above such that the class contains a method capable of creating a new object.

7.   Claims 10-11 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short in view of Shiran and further in view Tan.

Claim 10:

The combination of Short and Shiran discloses all the elements of claim 9, as noted above, but the previously mentioned combination does not explicitly disclose having further computer-executable instructions for performing the step of returning a result of carrying out the requested database operation method. However, Tan discloses having further computer-executable instructions for performing the step of returning a result of carrying out the requested database operation method *(Tan: paragraph [0046], lines 1-8; The array of search results are returned. The database operation was the search.).*

It would have been obvious for one of ordinary skill in the art to modify the previously mentioned combination with the teachings of Tan noted above. The skilled artisan would have been motivated to improve the previously mentioned combination per the above such that after execution of a method (or function call) the result of the method (or function call) is returned and can be used in further processing.

Claim 11:

The combination of Short, Shiran, and Tan discloses all the elements of claim 10, as noted above, and Tan further discloses wherein the requested database operation method is a search method, and wherein the result of the requested database operation method includes an array *(Tan: paragraph [0046], lines 1-8; An array is returned as a result of a search operation.).*

Claim 20:

The combination of Short and Shiran discloses all the elements of claim 19, as noted

above, but the previously mentioned combination does not explicitly disclose means returning a

result of carrying out the requested database operation method to the client. However, Tan

discloses means returning a result of carrying out the requested database operation to the client

(Tan: paragraph [0046], lines 1-8; The array of search results are returned. The database operation was the search.).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the previously mentioned combination with the teachings of Tan noted

above. The skilled artisan would have been motivated to improve the previously mentioned

combination per the above such that after execution of a method (or function call) the result of

the method (or function call) is returned and can be used in further processing.

Claim 21:

The combination of Short and Shiran discloses all the elements of claim 19, as noted

above, and but the previously mentioned combination does not explicitly disclose wherein the

directory operation methods include a search method returning an array as a search result.

However, Tan discloses wherein the directory operation methods include a search method

returning an array as a search result *(Tan: paragraph [0046], lines 1-8).*

It would have been obvious to one ordinary skill in the art at the time the invention was

made to modify the previously mentioned combination with the teachings of Tan noted above.

The skilled artisan would have been motivated to improve the previously mentioned combination

per the above such that when multiple results are found for a search, all results are returned, not

just the first match.

8.   Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Short in view of

Shiran and in further view of U.S. Patent Application Publication Number 2004/0267808 issued

to Hiroyuki Matsushima (hereinafter "Matsushima").

Claim 12:

The combination of Short and Shiran discloses all the elements of claim 9, as noted

above, but the previously mentioned combination does not explicitly disclose wherein the

requested database operation method has an array as operand, and the request message includes a

plurality of serialized objects of different object types corresponding to elements of the array.

However, Matsushima discloses wherein the requested database operation method has an array

as operand, and the request includes a plurality of serialized objects of different types

corresponding to elements of the array *(Matsushima: paragraph [0210], lines 1-8)*.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the previously mentioned combination with the teachings of Matsushima

noted above. The skilled artisan would have been motivated to improve previously mentioned

combination per the above in order to help develop a scheme to absorb the difference between

two data formats being submitted through the Web Server *(Matsushima: paragraph [0006], lines 1-6)*.

9.   Claims 14, 15, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Short in view of Shiran and in further view of U.S. Patent Application Publication Number

2004/0088713 issued to Myllymaki et al. (hereinafter "Myllymaki").

Claim 14:

The combination of Short and Shiran discloses all the elements of claim 13, as noted

above, but the previously mentioned combination does not explicitly disclose wherein the step of

sending the description document includes converting a compiled code module into the description document. However, Myllymaki discloses wherein the step of sending the description document includes converting a compiled code module into the description document *(Myllymaki: paragraphs [0070] and [0071]; Note the SD description code is translated to executable code (machine or compiled code) and then a WSDL description document is created from the SD description code.).*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the previously mentioned combination with the teachings of Myllymaki noted above for the purpose generating a WSDL description document from compiled (executable) code *(Myllymaki: paragraph [0071], lines 4-8).* The skilled artisan would have been motivated to improve previously mentioned combination per the above such that it would assist a client application to programmatically access a website *(Myllymaki: paragraph [0010], lines 1-2).*

Claim 15:

The combination of Short, Shiran, and Myllymaki discloses all the elements of claim 14, as noted above, and Short further discloses wherein the compiled code module is in an · intermediate language for a runtime environment platform *(Short: Chapter 11 – "Debugging Web Services", Section 2: "Information the Debugger Needs", lines 16-18).*

Claim 24:

The combination of Short and Shiran discloses all the elements of claim 23, as noted above, but the previously mentioned combination does not explicitly disclose wherein the means of providing the description document includes a WSDL conversion module for converting a compiled code module into the description document. However, Myllymaki discloses wherein the means of providing the description document includes a WSDL conversion module for

converting a compiled code module into the description document *(Myllymaki: paragraphs [0070] and*

[0071]; The conversion of the executable (compiled) code to the WSDL document requires some form of a WSDL

conversion module.).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the previously mentioned combination with the teachings of Myllymaki

noted above for the purpose generating a WSDL description document from compiled

(executable) code *(Myllymaki: paragraph [0071], lines 4-8).* The skilled artisan would have been

motivated to improve the previously mentioned combination per the above such that it would

assist a client application to programmatically access a website *(Myllymaki: paragraph [0010], lines 1-*

2).

10.   Claim 17-18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short

in view of Shiran and in further view of U.S. Patent Application Publication Number

2005/0193269 issued to John Jeffrey Haswell et al. (hereinafter "Haswell").

Claim 17:   ·

The combination of Short and Shiran discloses all the elements of claim 16, as noted

above, but the previously mentioned combination does not explicitly disclose wherein

communicating with the database server is according to a directory access protocol. However, .

Haswell discloses wherein communicating with the database server is according to a directory

access protocol *(Haswell: paragraph [1529]).*   ·

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the teachings of the previously mentioned combination with the teachings of

Haswell noted above. The skilled artisan would have been motivated to improve the previously

mentioned combination per the above because LDAP (the directory access protocol used by

Haswell) is the industry standard Internet Protocol for accessing directory services *(Haswell:*

paragraph [1529], lines 3-5).

Claim 18:

The combination of Short, Shiran, and Haswell discloses all the elements of claim 17, as

noted above, and Haswell further discloses wherein the database access protocol is the

Lightweight Directory Access Protocol (LDAP) *(Haswell: paragraph [1529]).*

Claim 27:

The combination of Short and Shiran discloses all the elements of claim 26, as noted

above, and but the previously mentioned combination does not explicitly disclose wherein the

means for accessing the database communicates with the database server using the Lightweight

Directory Access Protocol (LDAP). However, Haswell discloses wherein the means for

accessing the database communicates with the database server using the Lightweight Directory

Access Protocol (LDAP) *(Haswell: paragraph [1529]).*

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the teachings of the previously mentioned combination with the teachings of

Haswell noted above. The skilled artisan would have been motivated to improve the previously

mentioned combination per the above because LDAP (the directory access protocol used by

Haswell) is the industry standard Internet Protocol for accessing directory services *(Haswell:*

paragraph [1529], lines 3-5).

11.   Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Short in view of

Shiran and in further view of Frankel.

Claim 22:

The combination of Short and Shiran discloses all the elements of claim 19, as noted

above, but the previously mentioned combination does not explicitly disclose wherein the

database operation methods include a create method having an array as an operand. However,

Frankel discloses wherein the database operation methods include a create method having an

array as operand *(Frankel: column 22, lines 56-58).*

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the previously mentioned combination with the teachings of Frankel noted

above. The skilled artisan would have been motivated to improve the previously mentioned

combination per the above such that a method is capable of performing batch processing on a

grouping of input data.

12.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Short in view of

Shiran and in further view of U.S. Patent Application Publication Number 2002/0035559 issued

to William L. Crowe et al. (hereinafter "Crowe").

Claim 28:

The combination of Short and Shiran discloses all the elements of claim 1, as noted

above, but the previously mentioned combination does not explicitly disclose wherein the

plurality of database operations includes one or more batch operations.

However, Crowe discloses wherein the plurality of database operations includes one or

more batch operations *(Crowe: paragraph [0090], lines 7-11; The use of batch processing and other basic*

database operations is extremely well-known and obvious in the art.).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the previously mentioned combination with the teachings of Crowe noted

above. The skilled artisan would have been motivated to improve the previously mentioned

combination per the above such that operations could be performed in order to support an

internal database *(Crowe: paragraph [0090], lines 5-7)*.

Response to Arguments

<u>Applicant Argues:</u>

While Short and Shiran generally relate to Web service which use the Microsoft.NET platform,
Applicant submits that they fail to disclose or suggest each of the limitations of the independent claims. For
example, among other things, they fail to disclose or suggest wherein a description document describes a
Web service which interacts with a server to discover other Web services listed in a database directory of
Web services, as recited in combination with the other claim elements.

Short fails, however, to disclose that either such Web service is used to discover other Web
services accessible on a network or that a description document is received for describing a Web service
configured to discover other Web services listed in a database directory of Web services, as recited in
combination with the other claim elements.

<u>Examiner Responds:</u>

Examiner is not persuaded. Short clearly discloses using a Web Service to discover other

Web services accessible on a network (Short: see at least Chapter 9 – "Discovery Mechanisms for

Web Services", page 1, lines 7-9). Furthermore, Short clearly discloses a description document

for describing a Web service configured to discover other Web services listed in a database

directory of Web services (Short: see at least Chapter 9 – "Discovery Mechanisms for Web

Services", page 1, lines 7-13 and Chapter 9 – "Discovery Mechanisms for Web Services", page 1,

line 19 – page 2, line 7 and page 22, Table 9-4, 'wsdlSpec' and page 24, lines 13-32).

While the Examiner has cited the what appear to be the most significant portions of

Chapter 9, that does not mean the portions are not relevant. Chapter 9, as a whole, discloses

how to create a Web service to discover Web services listed in a directory of Web services. It is

the Examiner's position at this time that the Short reference as a whole actually teaches how to

build the Applicant's claimed invention.

Since it appears that all elements of the Applicant's claimed invention are either

disclosed or suggested in the combination of Short and Shiran, the 35 U.S.C. 103(a) rejection is

upheld.

Applicant Argues:

Short fails, however, and despite expressly considering the need for discovery of Web services, to disclose or suggest that a Web service, and its corresponding description document be implemented and created for discovering Web services from the directory database. In other words, Short appears to describe a dataset directory for finding Web services using UDDI or DISCO, but fails to disclose a <u>Web service for discovering other Web services from such a database directory</u>, as claimed in combination with the other elements.

Examiner Responds:

Examiner is not persuaded. Short explicitly suggests a Web service for discovering

other Web services from a database directory in Chapter 9 – "Discovery Mechanisms for Web

Services", page 1, lines 7-18. Then in the rest of Chapter 9 Short discloses how to make such a

web service.

Since it appears that all elements of the Applicant's claimed invention are either

disclosed or suggested in the combination of Short and Shiran, the 35 U.S.C. 103(a) rejection is

upheld.

Applicant Argues:

Applicant notes that Chapter 9, which is cited by the Office in the rejection of dependent claim 29, is entitled "Discovery Mechanisms for Web Services" and appears to also be directed to the discovery of Web services. Nevertheless, the Office has not provided Applicant with Chapter 9 of Short for

consideration, and Applicant has received portions of Chapters 1, 5, 6, 7, and 11 from the Office for consideration. Moreover, inasmuch as claims 1, 9, and 19 have been amended to incorporate portions of claim 29, for which the apparently relevant sections of Short have been provided, Applicant respectfully submits that any subsequent Action should be non-final.

Examiner Responds:

Examiner is not persuaded. The prior art rejection is given over the combination of the

Short reference and the Shiran reference. This is clearly indicated in the grounds of rejection

cited in the Examiner's office action. It is understood that these references should be considered

as a whole. Since the grounds of rejection cited in the Office Action have not changed, this

Action will be made final.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR

1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

will the statutory period for reply expire later than SIX MONTHS from the mailing date of this
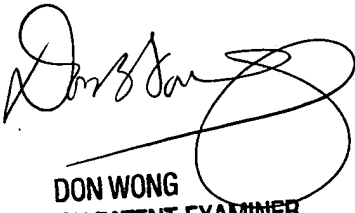
final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick A. Darno whose telephone number is (571) 272-0788. The examiner can normally be reached on Monday - Friday, 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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